California Regional Water Quality Control Board
Santa Ana Region

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Arnold Schwarzenegger
Governor

February 28, 2005

Base Realignment and Closure
Attn: Mr. F. Andrew Piszkin, P.E.
BRAC Environmental Coordinator
7040 Trabuco Road
Irvine, CA 92618

COMMENTS ON WORK PLAN FOR GROUNDWATER MONITORING/EVALUATION OF NATURAL ATTENUATION AT FORMER UST 398 SITE, CASE No. 083001036T, FORMER MARINE CORPS AIR STATION, EL TORO

Dear Mr. Piszkin:

We have reviewed the above referenced document, dated December 22, 2004, which we received on December 29, 2004. We have the following comments:

- **Figures 2-2, 2-3, & 5-1**: Not all of the 26 monitoring wells identified on Table 2-1, Monitoring Well Sampling Events, are included on the figures. Please identify the locations of all existing site groundwater monitoring wells and extraction wells on site figures.

- **3.0 PROJECT OBJECTIVES**, second bullet, Page 3-1: A five-year demonstration period is normally accepted for evaluation of natural attenuation and diffused groundwater plume stability. We will require a minimum five-year evaluation period for a monitored natural attenuation (MNA) corrective action plan for this site.

- **5.1.1 Proposed Groundwater Monitoring Well Locations**, second bullet, Page 5-2: We previously commented on the proposed location of MW398-21(R) (Figure 4-1) in comments dated August 16, 2004 on the Proposal for Replacement of Two Groundwater Monitoring Wells. At that time, we requested discussion on the location for MW398-21R prior to well installation. We believe the proposed location is not a useful point for monitoring the diffused plume, and would not provide useful monitoring data for the UST 398 Site. We believe that a downgradient monitoring well is necessary for effective monitoring of the plume. We request that the planned replacement well be located between MW398-29 and either MW398-26 or MW398-28. Replacing the cross-gradient monitoring point (MW398-26) is not as critical as insuring that the site has sufficient downgradient monitoring points. Be advised that you must obtain Board staff's concurrence with the proposed well locations prior to your installation of the replacement groundwater wells.

- **5.1.2 Drilling Methodology**, first paragraph, Page 5-2: The selected drilling method is roto-sonic. The two reasons cited for choosing this method are: a significantly smaller amount of drill cuttings will be produced, and the roto-sonic rig has the ability to collect continuous sediment cores. Collection of continuous sediment cores is a very positive and useful tool for understanding the conceptual site model. It should be noted that numerous borings

have been completed at this site during remedial investigations and remedial actions. Therefore, the collection of continuous cores may not be a priority. This drilling method is expensive, smears clay-rich sediments within the borehole (thereby reducing the efficiency of the well), and normally results in a smaller diameter boring than the annulus necessary for installation of four-inch diameter monitoring wells.

- **5.1.3 Groundwater Monitoring Well Design and Installation Procedures**, second paragraph, Page 5-5: The proposed borehole diameter is stated as either 8 or 10 inches. Please note that neither the 8-inch nor the 10-inch diameter boring would provide an adequate boring annulus for construction of the 4-inch inner diameter (5-inch outer diameter) casing for the monitoring wells. We request a minimum 14-inch diameter boring for each of the two proposed monitoring wells. This larger diameter boring is necessary for installation of a functional filter pack between the well casing and the wall of the borehole.

- **5.1.3 Groundwater Monitoring Well Design and Installation Procedures**, second paragraph, Page 5-5: Please recheck your calculations on the selection of schedule 40 polyvinyl chloride (PVC) for use as casing blank in construction of a monitoring well to a depth of 195 feet. We recommend using 4-inch diameter schedule 80 PVC as the proper selection for this application.

- **5.1.3 - Groundwater Monitoring Well Design and Installation Procedures**, second paragraph, Page 5-5: The selected screen slot size is identified as 0.01-inch. Section 5.1.3.1 identifies the filter pack sand as #2/16 size. We are aware that number 2/16 size sand is the most commonly selected filter pack sand used in monitoring wells within the Santa Ana Region. The selection is due to the dominance of clayey silt or sandy silt sediments at many locations throughout the region. However, the appropriate and normally selected screen slot size used with #2/16 sand is a PVC 0.02-inch milled slot. Unless your selection of the 0.01-inch slot size is based on your experience with existing site monitoring wells, the well specifications should be based on a sieve analysis of sediments representative of the interval to be screened. Please also consider the common problems associated with PVC milled slots. Biofouling and swelling are likely to occur in the presence of petroleum products, such as those present at UST 398. Therefore, we recommend that you consider a larger screen slot size (e.g. 0.03-inch), and an appropriate filter pack, based upon the sieve analysis at this location.

- **5.1.3.5 - Well Development Procedures**, first paragraph, Page 5-9: Well development is specified to be performed no sooner than 48 hours after completion. Considering the total depth of the proposed wells, we recommend allowing 72 hours prior to development.

- **5.3 - Wells Selected for Long-Term Monitoring**, second paragraph, Page 5-11: We do not concur with the statement: “Two hydrologic cycles (two years) of monitoring data will be the minimum necessary to evaluate site conditions.” A minimum of eight groundwater monitoring events are typically required, in order to obtain enough data for statistical trend analysis. Utilizing a semiannual sampling schedule, a trend demonstration will require at least four years of uninterrupted monitoring. If, as in previous years, the monitoring schedule at El Toro MCAS is overlooked or interrupted, further assessment will be required to determine when an appropriate dataset has been produced.

- **5.3 - Wells Selected for Long-Term Monitoring**, second paragraph, No. 3 and bullets, Page 5-12: Seven groundwater monitoring wells are proposed to define the perimeter of the contaminant plume, and monitor fluctuations in contaminant concentrations. As discussed in our third comment (above), we are requesting that the proposed replacement well for MW398-26 be sited as a downgradient well. We believe MW398-26 should be retained for monitoring when the groundwater level drops below the top of the well screen, or replaced at a later date, if necessary. This request would result in an eight-well monitoring network, including four downgradient monitoring wells.

- **5.4 - Sampling Equipment Decontamination Procedures**, Page 5-14: Regional Board Order No. R8-2003-0044 allows for the waiver of waste discharge requirements for specific types of discharges, including monitoring well purge water. This order would allow discharge of purge water to the ground, in accordance with the waiver requirements. If so requested by the Navy, Board staff will coordinate with the Navy's RPM to evaluate the nature of the discharge and, if appropriate, provide formal certification of coverage under the waiver.

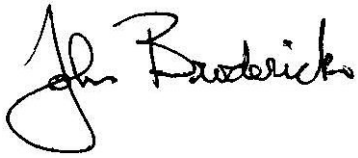
- **5.10 - Free Product Recovery**, 1st paragraph, Page 5-17: Free product thickness will be measured monthly in specified wells. The proposal is to bail free product from the specified wells when the measured thickness exceeds 12 inches. The frequency of bailing is not specified; it could be assumed to be monthly. The frequency and method of free product removal are often established on a site-specific basis, using a field demonstration to define individual well recovery periods. Therefore, we ask that you conduct a field test to ascertain the most efficient method and schedule for removal of free product from the specified wells.

- **APPENDIX A – SAMPLING AND ANALYSIS PLAN**: Changes that are made in response to the above comments should be incorporated into the appropriate sections of the revised Sampling and Analysis Plan, and submitted for our review.

- **SAMPLING AND ANALYSIS PLAN**: A figure of appropriate scale, showing the locations of all site monitoring wells and extraction wells, would be useful to personnel conducting field work under this plan, as well as any person reviewing this plan.

For any questions, please call me at (951) 782-4494, or send email to jbroderick@waterboards.ca.gov.

Sincerely,



John Broderick
SLIC/DoD Section

cc via email: Ms. Lynn Hornecker, NAVFACENGCOM, Southwest Division